

IT IS CLAIMED:

- 1 1. A method of reducing vibration in a pumped system, comprising:
2 measuring a first vibration; and
3 producing a second vibration in a pump, the second vibration being in anti-
4 phase with the first vibration.
- 1 2. The method of claim 1 wherein, the pump is a turbomolecular pump.
- 1 3. The method of claim 1 wherein, the first vibration is measured at a process
2 chamber.
- 1 4. The method of claim 1 wherein, the first vibration is generated by a second
2 pump that is connected to the first pump.
- 1 5. The method of claim 1 wherein, the second vibration is produced by a
2 magnetic bearing in the pump.
- 1 6. The method of claim 1 further comprising sending a signal to the pump in
2 response to the first vibration.
- 1 7. A method of active vibration reduction in a pumped system, comprising:
2 measuring a first vibration;
3 generating a control signal in response to the first vibration; and
4 sending the control signal to a magnetic bearing in a pump to induce a second
5 vibration in the pump, the second vibration being in opposition to the first
6 vibration such that the sum of the first vibration and the second vibration is
7 less than the first vibration.
- 1 8. The method of claim 7 further comprising creating a reduced pressure in a
2 chamber using the pump.

1 9. The method of claim 8 wherein the first vibration is measured at the
2 chamber.

1 10. The method of claim 7 wherein, the first vibration is measured at an inlet
2 of the pump.

1 11. A pumped system, comprising:
2 a pump that comprises a magnetic bearing;
3 a vibration detector that generates a detection signal in response to a first
4 vibration; and
5 a control circuit that sends a control signal to the magnetic bearing in
6 response to the detection signal, the control signal inducing a second
7 vibration in the pump.

1 12. The pumped system of claim 11 wherein, the second vibration is in anti-
2 phase with the first vibration.

1 13. The pumped system of claim 11 further comprising a flange that attaches
2 the pump to a process chamber.

1 14. The pumped system of claim 13 wherein the vibration detector is attached
2 to the flange.

1 15. A pumped system, comprising:
2 a first pump that produces a first vibration;
3 a second pump that comprises a magnetic bearing;
4 a vibration detector that generates a detection signal in response to the first
5 vibration; and
6 a control circuit that sends a control signal to the magnetic bearing in
7 response to the detection signal, the control signal inducing a second
8 vibration in the second pump.

- 1 16. The pumped system of claim 15 wherein the first pump is a dry pump.
- 1 17. The pumped system of claim of claim 15 wherein the second pump is a
2 turbomolecular pump.
- 1 18. The pumped system of claim 15 further comprising an attaching element
2 configured to allow the pumping system to be attached to a host.
- 1 19. The pumped system of claim 18 wherein the vibration detector is mounted
2 on the attaching element.
- 1 20. The pumped system of claim 15 wherein, the second pump is configured
2 to remove gas from a chamber and the first pump is attached to the second
3 pump and is configured to remove gas from the second pump.